



## Repowering Sterndrive & Inboard Engines in Emission Regulated Regions

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Mercury led the development and implementation of low-emission marine engines since they were initially proposed in 1994. It has been a long path working with many government, trade, and technology partners to bring to market products that are practical, safe and effective.

- 2008 - C.A.R.B. adopts the first 4-Star regulations outside the Bodensee Lake region
- 2010 - US EPA 4-Star regulations take effect across the remaining 49-states
- 2010 – Canada adopts regulations similar to the US EPA
- 2017 - The E.U. Recreational Craft Directive requires aftertreatment for all new engines
- 2019 - Australia adopts similar regulations to the US EPA requirements

As a result, inboard and sterndrive gas engines now require catalyst level exhaust aftertreatment systems for the majority of new recreational boats sold in the global market place.

The US EPA guidelines allowed for a handful of exemptions for certain engine families being phased out to aid consumers with the US market transition in 2010.

- Engines manufactured prior to January 1, 2010
- 4.3L engines manufactured prior to January 1, 2011
- Discontinued 8.1L engines
- Racing engines (500+ HP) fall under a separate regulation
- Engines exempted with the use of emission credits

In any case, recreational boats built after a regulation went into effect must repower with a catalyst engine. This is true even if the boat was originally equipped with an exempted or non-catalyst engine.

Engines used to repower older boats usually follow a different set of guidelines. EPA regulations allow pre-2010 boats to be repowered with new engines not equipped with emissions control technology. Similar provisions hold in the State of California for boats built prior 2008. The EU RCD-17 requires all new engines to be catalyzed even for repair and repower of older boats. There are some options in the provisions, so other manufacturers' programs may vary. But repowering a pre-regulatory sterndrive or inboard boat with Mercury and Quicksilver engines for recreational use can be summarized with three simple options:

1. Repower with a new engine using aftertreatment
2. Return the old engine for a new engine without aftertreatment
3. Use a remanufactured product or spare parts to effect repairs



## **Repower with a New Engine Using Emissions Control Technology**

There is an ECT engine for every application including: runabouts, houseboats, and large cruisers. An engine equipped with emissions control technology will satisfy EPA requirements to repower with the same or cleaner technology.

Engines equipped with emissions control technology benefit from better fuel economy and deliver the same power as older-technology engines. Fuel-injection is mandatory. There are upgrades to the exhaust system with the addition of precious metal catalysts and oxygen sensors. A more powerful engine computer is required to monitor the emissions performance and perform diagnostics at all engine speeds. Each engine is certified to exceed a demanding durability cycle for unmatched reliability and peace of mind.

Most importantly, an engine with emissions control technology provides years of worry-free boating while reducing emissions for a cleaner environment.



## **Return the Old Engine for a New Engine without ECT**

If an engine with emissions control technology (ECT) is incompatible with a pre-2010 boat (pre-2008 in California), then a brand new Mercury or Quicksilver engine without ECT may be used to repower the boat.

Incompatibility with emissions control technology means documenting that an ECT engine does not fit into an old boat because extensive modification would be required to any of the following:

- Exhaust system
- Electrical system
- Steering, throttle or shift rigging
- Incompatible power rating
- Incompatible engine dimensions (height, length, width, etc.)

Federal law mandates that the engine being replaced must be returned to the manufacturer of the new engine – EPA Code 1068.240. This is similar to the automotive sector's "Cash for Clunkers" program that required destruction of the car to receive a rebate. The ability to purchase an engine without emissions control technology is the "rebate."

All freight for these returns is paid by Mercury. Engines are returned to:

Quicksilver Remanufacturing  
601 14<sup>th</sup> Street  
Monett, MO 65708  
Attn: Core Receiving Dock

For answers to questions concerning returns, call 920-924-1853.



## Use a Remanufactured Product or Spare Parts

Remanufactured engines such as Plus Series Engines can be used to repower pre-2010 boats in 49 states and pre-2008 boats in California. These units are considered Spare Parts by the E.U. and are available for use there as well. Some countries do not allow the importing of used products, so be sure to consult local regulations.

By refreshing & upgrading existing engines, remanufacturing offers product at a fraction of the cost of new. Because we return these engines to factory specification, we stand behind them with a factory-backed limited warranty and service support.

Whether Certified Pre-Owned or Plus Series, each remanufactured engine may qualify for up to two years of Mercury Product Protection.

Certified Pre-Owned MerCruiser engines have been brought back to a fully functional state after going through our process that requires:

- Multi-point inspection process
- Refresh or replace engine components, as necessary
- Update with a remanufactured longblock, as necessary
- 100% dynamometer testing

Certified Pre-Owned units will show evidence of use: scratches, cosmetic corrosion and any number of original hours are possible. But in every case the engines are deemed fully functional.

Plus Series engines are upgrades to a Certified Pre-Owned engine that receives a remanufactured longblock that has value performance in mind. Also, each Plus Series engine receives a fresh coat of paint and a signature flame engine cover.